

# **Schools and the Fire Code**

## **A Partnership for Safety**



**Sue Birren , Fire Prevention Coordinator**

**Department of Safety & Professional Services**

**5,100 fires occurred in educational occupancies in 2015**

**3,870 fires were in K-12 schools**

**79 people were injured with 1 death**

**\$88 million dollars of damage was done to educational  
properties**





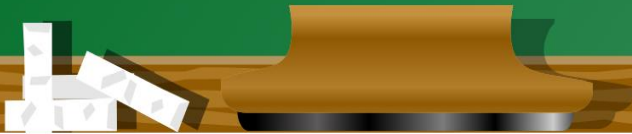
**School safety hazards change from generation to generation. But the number 1 safety problem in American society has always been hostile fire.**



# **Most Frequent Causes**

**38% of school fires are intentional**

**20% are Cooking Related**



# Objectives

- ◆ Familiarize participants with common code violations
- ◆ Identify and understand code language
- ◆ Discuss statutory requirements and how to meet those requirements
- ◆ Answer questions and identify solutions

# **NFPA 1 Uniform Fire Code 2012 edition**

**The State of Wisconsin adopted the 2012 edition of NFPA 1  
effective September 1, 2014.**



## **Access to NFPA Codes**

**Codes may be accessed free of charge at [www.nfpa.org](http://www.nfpa.org)**

**A subscription is needed to download material from this site.**



# Topics

- ◆ **Storage and clearances**
- ◆ **Electrical issues**
- ◆ **Fire doors**
- ◆ **Furniture and furnishings**
- ◆ **Fire extinguishers, placement and testing**
- ◆ **Exiting issues, during school and special events**
- ◆ **Artwork and other material attached to walls and ceilings**
- ◆ **Fire Alarms and Fire Drills**



# Storage

**10.19.1** Storage of combustibles shall be orderly.



**10.19.3.1** Storage shall be maintained 2 ft. or more from the ceiling in non-sprinklered areas of buildings.



**10.19.3.2** The clearance between the sprinkler deflector and the top of storage shall be 18 inches or greater.



# The Magic Number 36"

**Maintain 36" working space around all electrical service equipment.**

◆ **A clearance of at least 36" must be maintained around all sprinkler control valves.**

◆ **Maintain 36" clearance in all aisles.**







**10.19.4** Combustible material shall not be stored in exits.



**10.19.5.1** Combustible material shall not be stored in boiler rooms, mechanical rooms, or electrical equipment rooms.





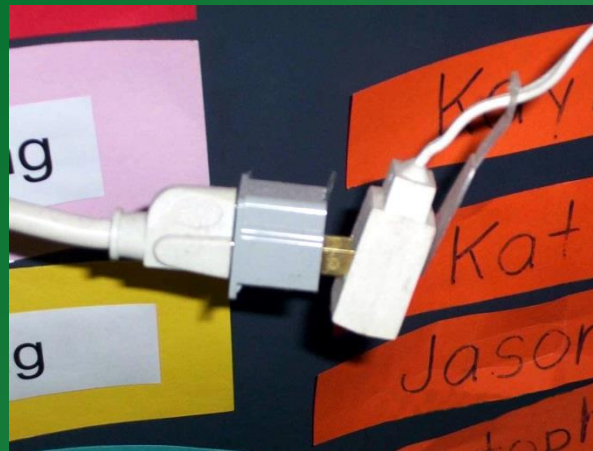
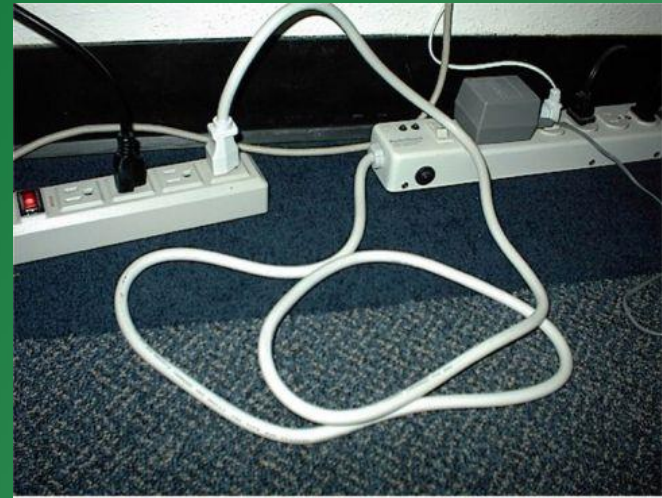
# Electrical

**11.1.5.2** Multiplug adapters shall not be used as a substitute for permanent wiring or receptacles.

**11.1.6.2** Relocatable power taps shall be directly connected to a permanently installed receptacle.

**11.1.6.3** Relocatable power tap cords shall not be extended through walls, ceilings, or floors, under doors or floor coverings; or be subject to environmental or physical damage.



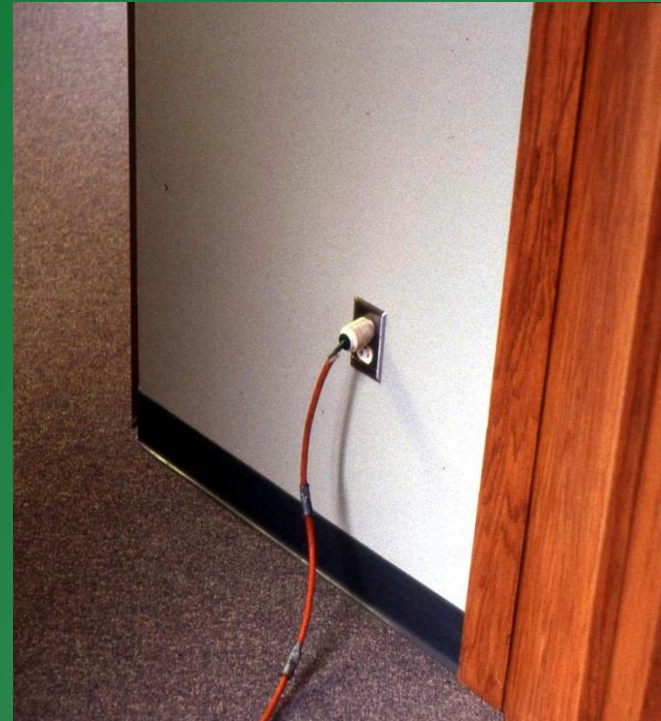


**11.1.7.3** Extension cords shall be maintained in good condition without splices, deterioration, or damage.

**11.1.7.5** Extension cords and flexible cords shall not be affixed to structures; extended through walls, ceiling, or floors, or under doors or floor coverings, or be subject to environmental or physical damage.

**11.1.7.6** Extension cords shall not be used as a substitute for permanent wiring.







**11.1.9.2** The disconnecting means shall be maintained accessible to the fire department.





**11.1.10 Covers** All panelboard and switchboard, pull boxes, junction boxes, switches, receptacles, and conduit bodies shall be provided with covers comparable with the box or conduit body construction and suitable for the conditions of use.



# Clothes Dryers

**11.5.1.11.1** Clothes dryers shall be cleaned to maintain the lint trap and keep the mechanical and heating components free from excessive accumulations of lint.



# Fire Doors

**12.4.6.6.1** Fire door assemblies shall be inspected and tested not less than annually, and a written record of the inspection shall be signed and kept for inspection by the AHJ.



### **12.4.6.18.3** Blocking or wedging of doors in the open position shall be prohibited.



**12.5.6.3.1** Bulletin boards, posters, and paper attached directly to the wall shall not exceed 20 percent of the aggregate wall area to which they are applied.



# Furnishings and Decorations

**12.6.1** Draperies, curtains, and other similar loosely hanging furnishings and decorations shall be flame resistant as demonstrated by testing in accordance with NFPA 701.



## Little Red Riding Hood





## **12.6.4** Furnishings and decorations of an explosive or highly combustible character shall not be used.



**12.6.5** Fire-retardant coatings shall be maintained to retain their effectiveness of the treatment under service conditions encountered in actual use.



**12.6.3.1 Upholstered Furniture** Newly introduced upholstered furniture shall be resistant to a cigarette ignition (i.e. smoldering) in accordance with one of the following: NFPA 260 Standard Methods of Tests and Classifications System for Cigarette Ignition Resistance of Components of Upholstered Furniture OR ASTM E 1353 Standard Test Methods for Cigarette Ignition Resistance of Components of Upholstered Furniture.



# Fire Extinguishers

**13.6.8.13.3.1** Fire extinguishers shall not be obstructed or obscured from view.

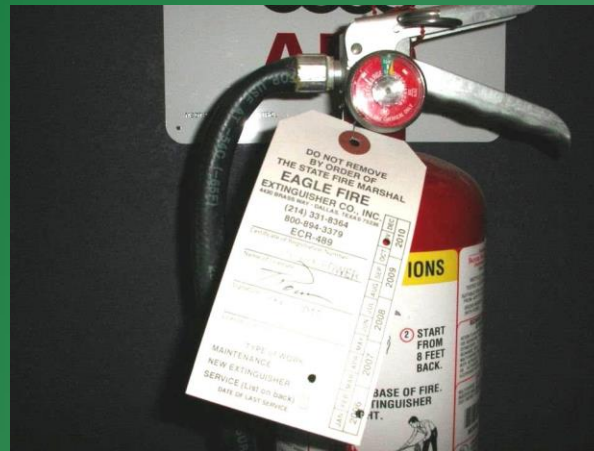




**13.6.9.3.1.1.1** Fire extinguishers shall be subject to maintenance at intervals of not more than 1 year, at the time of hydrostatic test, or when specifically indicated by inspection or electronic notification.



**13.6.9.4.5** Each fire extinguisher shall have a label securely attached that indicates the month and year the maintenance was performed and identifies the person performing the inspection.



# Exiting

**Locks and other methods of securing exit doors are generally prohibited. The exception is the “one motion concept” or the ability to unlock a door with the motion of one hand. The ability to egress a building in a timely fashion is the keystone of all fire safety.**

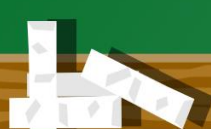


**14.3.3** An exit enclosure shall not be used for any purpose that has the potential to interfere with its use as an exit and, if so designated, as an area of refuge.



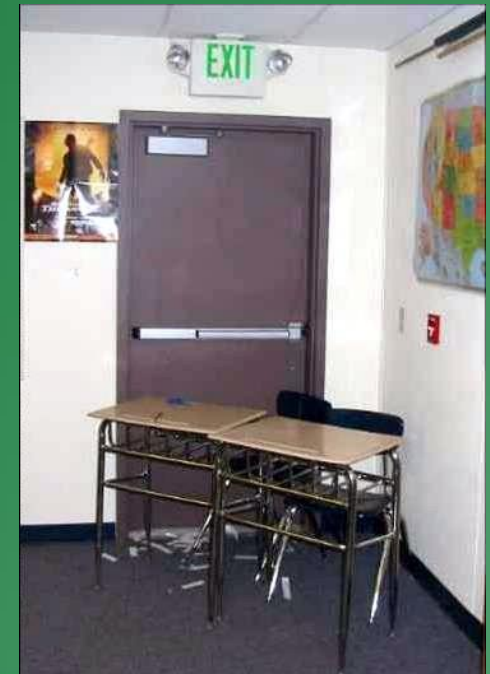
**14.4.1** Means of egress shall be continuously maintained free of all obstructions or impediments to full instant use in the case of fire or other emergency.







**14.4.2.1** No furnishings, decorations, or other objects shall obstruct exits or their access thereto, egress therefrom, or visibility thereof.



**14.4.2.2** No obstruction by railings, barriers, or gates shall divide the means of egress into sections appurtenant to individual rooms, or other occupied spaces.





**14.5.2.3** Locks, if provided, shall not require the use of a key, a tool, or special knowledge or effort for operation from the egress side.



**14.5.4.1** A door leaf normally required to be kept closed shall not be secured in the open position at any time and shall be self-closing or automatic-closing.

**A.18.2.4** Fire department access roads should be kept clear of obstructions such as parked vehicles, fences, and other barriers, dumpsters and excess vegetation. However, it should be understood that a severe snowstorm can make these roads temporarily inaccessible.



# Inspection

**20.24.3.1** It shall be the duty of principals, teachers, or staff to inspect all exit facilities daily to ensure that all stairways, doors, and other exits are in proper condition.

## **20.2.4.4.2 Clothing and personal effects shall not be stored in corridors.**

**Exception 1: This requirement shall not apply to corridors protected by an automatic sprinkler system.**

**Exception 2: This requirement shall not apply to corridors protected by a smoke detection system.**

**Exception 3: This requirement shall not apply to storage in metal lockers, provided that the required egress is maintained.**







**20.2.4.4.3** Artwork and teaching materials shall be permitted to be attached directly to the walls and shall not exceed 20 percent of the wall area.

**Exception:** Artwork and teaching materials shall not exceed 50 percent of the wall area in a building that is protected throughout by an approved automatic sprinkler system.

















***Taken from the National Fire Protection Association Fire Prevention Code Handbook:***

It is advantageous not only to limit the quantity of artwork displayed but also to avoid placing such materials near a room's exit access doors. Because the combustibility of the artwork cannot be effectively controlled, the quantity, in terms of the percentage of wall area covered, is regulated to avoid creating a continuous combustible surface that will spread flame across the room.









# Artwork Considerations

The 20% criterion refers to the wall area of each wall and not the aggregate wall area of a room or space.

- ◆ Bookshelves placed against a wall or built-in are part of the wall surface, however books placed on the shelves are not part of the 20% provision.
- ◆ Art work can be attached only to the walls, not the ceiling.







# Fire Alarms

**Code requirements are found in NFPA 1(Fire Prevention) and NFPA 72 (Fire Alarms).**

**Local Ordinances may also apply. Check with your local municipality.**



**13.7.3.3.5** Manual fire alarm boxes shall be installed so that they are conspicuous, unobstructed and accessible.



***Taken from the National Fire Protection Association Fire Prevention Code Handbook:***

**Plastic covers are permitted to protect and provide relief from accidental or malicious unwarranted alarms. These covers must be listed for such use.**



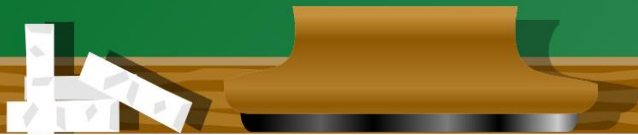


**13.7.3.2.3.1** A complete record of the tests and operations of each system shall be kept until the next test and for 1 year thereafter.

**13.7.3.2.3.2** The record shall be available for examination, and if required, reported to the AHJ.



**13.7.4.4.1** The inspection, testing and maintenance for fire alarm and fire detection systems shall be in accordance with Chapter 10 of *NFPA 72*



**13.7.5.2** The system owner or designated representative shall immediately notify the AHJ in an approved manner when a fire alarm system impaired.



## **Hints:**

**Do not get behind in maintenance**

**Do not try to inter-connect old and new systems**

**Fix and repair promptly**

**Use pull station guards for false alarm prone areas**



# Fire Drills

## **Wisconsin Statute 118.07(2)(a):**

Once each month, without previous warning, the person having direct charge of any public or private school shall drill all pupils in the proper method of departure from the building as if in case of fire, except when the person having direct charge deems that the health of the pupils may be endangered by inclement weather conditions. The school board or governing body of the private schools shall maintain for at least 7 years a record of each fire drill conducted.



# Tornado Drills

**At least twice annually, without previous warning, the person having direct charge of any public or private school shall drill all pupils in the proper method of evacuation to a safe location in case of tornado or other hazard.**

# Safety Drills

**At least twice annually, without previous warning, the person having direct charge of any public or private school shall drill all pupils in the proper method of evacuation or other appropriate action in case of a school safety incident.**

**20.2.4.2.3. Emergency egress drills shall be conducted as follows:**

- (1) Not less than one emergency egress drill shall be conducted every month the facility is in session, unless both of the following criteria are met:
  - (a) In climates where the weather is severe, the monthly emergency egress drills shall be permitted to be deferred.**
  - (b) The required number of emergency egress drills shall be conducted and not less than 4 shall be conducted before the drills are deferred.****

**20.2.4.2.3 (2) All occupants of the building shall participate in the drill.**

**(3) One additional emergency egress drills, other than for educational occupancies that are open on a year-round basis, shall be required within the first 30 days of operation.**



**20.2.4.2.4 All emergency drills alarms shall be sounded on the fire alarm system.**



***Taken from the National Fire Protection Association Fire Prevention Code Handbook:***

**Emergency egress drills for educational occupancies, particularly those at the grade school level, are essential to ensure an orderly response during a fire. Unfortunately, the predictability of such drills often leads to their ineffectiveness.**

Dates: From \_\_\_\_\_ to \_\_\_\_\_

## Wisconsin School District Record of Fire / Tornado / School Safety / Other Evacuation Drills

School District Name: \_\_\_\_\_

School Name: \_\_\_\_\_ Municipality: \_\_\_\_\_ County: \_\_\_\_\_

School Address:

[illegible]

**On this form, or as an attachment, please note any deficiencies concerning:** (1) the performance of alarm equipment; (2) staff functions; (3) student performance; (4) obstructions; or (5) other factors which may pose a safety hazard or affect the efficient, orderly exiting from the building. Use of this form is mandated per section 118.07 (2) (b) of the Wisconsin Statutes for annual reporting to the fire department. The person having direct charge of the school is responsible for ensuring corrections of deficiencies.

School Official's Signature: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

**See other side**

SBD-11 (R. 9/16)

**Wisconsin Fire Drill Forms are available as a downloadable document from our website:**

**[DSPS.wi.gov/IndustryServices/Fire Prevention](https://DSPS.wi.gov/IndustryServices/Fire%20Prevention)**

**Choose “Forms and Publications” from the left hand side and click on SBD-11**



# Capacity and Overcrowding

**20.15.8.3** In the following assembly occupancies, an audible announcement shall be made, or a projected image shall be shown, prior to the start of each program that notifies occupants of the location of the exits to be used in case of a fire or other emergency:

## (3) Auditoriums

**20.15.8.4** The requirement of 20.15.8.3 shall not apply to assembly occupancies in schools where used for nonpublic events.





## Unsecured Seating

**20.15.10.2.2** Unsecured seats shall be permitted, provided that, in the area used for seating, excluding such areas as dance floors and stages, there is not more than one seat for each 15 ft<sup>2</sup> (1.4 m<sup>2</sup>) of net floor area, and adequate aisles to reach exits are maintained at all times.









# Occupant Load Posting

**20.15.10.3.1** Every room constituting an assembly occupancy and not having fixed seats shall have the occupant load of the room posted in a conspicuous place near the main exit from the room.

**20.15.10.3.3** Signs shall be durable and shall indicate the number



MAXIMUM  
OCCUPANCY  
NOT TO EXCEED  
613 PERSONS

MAXIMUM  
OCCUPANCY  
350

## Crowd Managers

**20.15.6.1** Assembly occupancies shall be provided with a minimum of one trained crowd manager or crowd manager supervisor. Where the occupant load exceeds 250, additional trained crowd managers or crowd manager supervisors shall be provided at a ratio of 1 crowd manager or crowd manager supervisor for every 250 occupants, unless otherwise permitted by one of the following:



**(1) This requirement shall not apply to assembly occupancies used exclusively for religious worship with an occupant load not exceeding 2000.**

**(2) The ratio of trained crowd managers to occupants shall be permitted to be reduced where, in the opinion of the AHJ, the existence of an approved, supervised automatic sprinkler system and the nature of the event warrant.**



**20.15.6.2** The crowd manager shall receive approved training in crowd management techniques.





# Questions



**Thank You**

